

## ABSTRACT

A cathode composition for a lithium-ion battery having the formula  $\text{Li}[\text{M}^1_{(1-x)}\text{Mn}_x]\text{O}_2$  where  $0 < x < 1$  and  $\text{M}^1$  represents one or more metal elements, with the proviso that  $\text{M}^1$  is a metal element other than chromium. The composition is in the form of a single phase having an O3 crystal structure that does not undergo a phase transformation to a spinel crystal structure when incorporated in a lithium-ion battery and cycled for 100 full charge-discharge cycles at 30°C and a final capacity of 130 mAh/g using a discharge current of 30 mA/g.

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